

FINAL PROJECT

DAY-06

JAVA-APPLICATION DEPLOYMENT IN MINIKUBE

EDIT CONFIG FILE AND NODE CREATION

```
akshitha@ITP-CC16-19: ~/k8s
The following additional packages will be installed:
  libwrap0 ncurses-term openssl-sftp-server ssh-import-id
Suggested packages:
  molly-guard monkeysphere ssh-askpass ufw
The following NEW packages will be installed:
  libwrap0 ncurses-term openssl-sftp-server openssl-sftp-server ssh-import-id
0 upgraded, 5 newly installed, 0 to remove and 28 not upgraded.
Need to get 880 kB of archives.
After this operation, 6861 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 openssl-sftp-server amd64 1:9.6p1-3ubuntu13.8 [37.3 kB]
Get:2 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 libwrap0 amd64 7.6.q-33 [47.9 kB]
Get:3 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 openssl-sftp-server amd64 1:9.6p1-3ubuntu13.8 [589 kB]
Get:4 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 ncurses-term all 6.4+20240113-1ubuntu2 [275 kB]
Get:5 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 ssh-import-id all 5.11-0ubuntu2.24.04.1 [10.1 kB]
Fetched 880 kB in 2s (382 kB/s)
(Reading database ... 44033 files and directories currently installed.)
Preparing to unpack .../openssl-sftp-server_1k3a9.6p1-3ubuntu13.8_amd64.deb ...
Unpacking openssl-sftp-server (1:9.6p1-3ubuntu13.8) ...
Selecting previously unselected package libwrap0.
Preparing to unpack .../libwrap0_7.6.q-33_amd64.deb ...
Unpacking libwrap0:amd64 (7.6.q-33) ...
Selecting previously unselected package openssl-server.
Preparing to unpack .../openssl-server_1k3a9.6p1-3ubuntu13.8_amd64.deb ...
Unpacking openssl-server (1:9.6p1-3ubuntu13.8) ...
Created symlink /etc/systemd/system/ssh.service.requires/ssh.socket → /usr/lib/systemd/system/ssh.socket.
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for libc-bin (2.39-0ubuntu4) ...
akshitha@ITP-CC16-19:~$ sudo systemctl enable ssh
Synchronizing state of ssh.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable ssh
Created symlink /etc/systemd/system/ssh.service → /usr/lib/systemd/system/ssh.service.
Created symlink /etc/systemd/system/multi-user.target.wants/ssh.service → /usr/lib/systemd/system/ssh.service.
akshitha@ITP-CC16-19:~$ sudo systemctl start ssh
akshitha@ITP-CC16-19:~$ sudo systemctl restart ssh.service
akshitha@ITP-CC16-19:~$ sudo systemctl status ssh
● ssh.service - OpenSSH Secure Shell server
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; enabled; preset: enabled)
   Active: active (running) since Fri 2025-03-21 05:47:55 UTC; 44s ago
     TriggeredBy: ● ssh.socket
     Docs: man:sshd(8)
           man:sshd_config(5)
   Process: 3147 ExecStartPre=/usr/sbin/sshd -D (code=exited, status=0/SUCCESS)
   Main PID: 3149 (sshd)
     Tasks: 1 (limit: 4572)
    Memory: 1.4M ( )
    CGroup: /system.slice/ssh.service
            └─3149 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Mar 21 05:47:55 ITP-CC16-19 systemd[1]: Starting ssh.service - OpenSSH Secure Shell server...
Mar 21 05:47:55 ITP-CC16-19 sshd[3149]: Server listening on :: port 22.
Mar 21 05:47:55 ITP-CC16-19 systemd[1]: Started ssh.service - OpenSSH Secure Shell server.
```

```
akshitha@ITP-CC16-19:~/k8s
ected: ''
akshitha@ITP-CC16-19:~$ cd ~/k8s
akshitha@ITP-CC16-19:~/k8s$ kubectl get node
error: error loading config file "/home/akshitha/.kube/config": yaml: line 33: could not find expected ':'
akshitha@ITP-CC16-19:~/k8s$ sudo vi cofig
[sudo] password for akshitha:

[1]+  Stopped                  sudo vi cofig
akshitha@ITP-CC16-19:~/k8s$ ls
cache  config
akshitha@ITP-CC16-19:~/k8s$ sudo vi config
akshitha@ITP-CC16-19:~/k8s$ kubectl get node
E0321 06:42:57.838852      4287 memcache.go:265] "Unhandled Error" err="couldn't get current server
API group list: Get \"https://127.0.0.1:32769/api?timeout=32s\": read tcp 127.0.0.1:37528->127.0.0.1:32769: read: connection reset by peer - error from a previous attempt: read tcp 127.0.0.1:37528->127.0.0.1:32769: read: connection reset by peer"
E0321 06:43:07.686971      4287 memcache.go:265] "Unhandled Error" err="couldn't get current server
API group list: Get \"https://127.0.0.1:32769/api?timeout=32s\": read tcp 127.0.0.1:58980->127.0.0.1:32769: read: connection reset by peer - error from a previous attempt: EOF"
E0321 06:43:17.887559      4287 memcache.go:265] "Unhandled Error" err="couldn't get current server
API group list: Get \"https://127.0.0.1:32769/api?timeout=32s\": read tcp 127.0.0.1:50210->127.0.0.1:32769: read: connection reset by peer - error from a previous attempt: read tcp 127.0.0.1:50210->127.0.0.1:32769: read: connection reset by peer"
E0321 06:43:27.916637      4287 memcache.go:265] "Unhandled Error" err="couldn't get current server
API group list: Get \"https://127.0.0.1:32769/api?timeout=32s\": read tcp 127.0.0.1:37686->127.0.0.1:32769: read: connection reset by peer - error from a previous attempt: read tcp 127.0.0.1:37686->127.0.0.1:32769: read: connection reset by peer"
E0321 06:43:37.933383      4287 memcache.go:265] "Unhandled Error" err="couldn't get current server
API group list: Get \"https://127.0.0.1:32769/api?timeout=32s\": EOF - error from a previous attempt: read tcp 127.0.0.1:51710->127.0.0.1:32769: read: connection reset by peer"
error: Get \"https://127.0.0.1:32769/api?timeout=32s\": EOF - error from a previous attempt: read tcp 127.0.0.1:51710->127.0.0.1:32769: read: connection reset by peer
akshitha@ITP-CC16-19:~/k8s$ minikube start
* minikube v1.35.0 on Ubuntu 24.04 (amd64)
* Using the docker driver based on existing profile
* Starting 'minikube' primary control-plane node in 'minikube' cluster
* Pulling base image v0.0.46 ...
* Updating the running docker 'minikube' container ...
* Preparing Kubernetes v1.22.0 on Docker 27.4.1 ...
* Verifying Kubernetes components...
  - Using image k8s.io/k8s-minikube/storage-provisioner:v5
  - Enabled addons: storage-provisioner, default-storageclass
* Done! Kubernetes is now configured to use "minikube" cluster and "default" namespace by default
akshitha@ITP-CC16-19:~/k8s$ kubectl get node
NAME              STATUS    ROLES    AGE   VERSION
minikube           Ready     control-plane  2d   v1.32.0
akshitha@ITP-CC16-19:~/k8s$
```

CREATION OF A PIPELINE PROJECT NAMED “java-application”

The screenshot shows the Jenkins Dashboard at localhost:8080. The left sidebar contains navigation links: New Item, Build History, Project Relationship, Check File Fingerprint, Manage Jenkins, and My Views. The main area displays a table of pipeline builds. The table has columns for status (S), icon (W), name, last success, last failure, and last duration. The 'java-application' pipeline is highlighted with a green checkmark and a cloud icon. Below the table, there are filters for 'Build Queue' (No builds in the queue), 'Build Executor Status' (0/2), and 'Cloud Statistics'. The bottom status bar shows the REST API and Jenkins version 2.492.2.

S	W	Name	Last Success	Last Failure	Last Duration
✓	☁	java-application	13 min #8	15 min #7	19 sec
✓	☀	maven	2 days 0 hr #1	N/A	20 sec
✓	☁	simpletomcatapplication	1 day 23 hr #7	1 day 23 hr #6	29 sec

PIPELINE SCRIPT

The screenshot shows the Jenkins Pipeline Configuration page for the 'java-application' project. The left sidebar has links for General, Triggers, Pipeline, and Advanced. The main area is titled 'Configure Pipeline' and contains a 'Definition' section with a dropdown menu set to 'Pipeline script'. Below this is a 'Script' section with a text area containing the following Groovy script:

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```

PIPELINE SCRIPT CODE

```
pipeline {
  agent any

  stages {
    stage('scm') {
      steps {
        git branch: 'main', url: 'https://github.com/Akshi1910/simple-web-app.git'
      }
    }
    stage('build') {
      steps {
        sh "mvn clean"
        sh "mvn install"
      }
    }
    stage('build to images') {
      steps {
        script{
          sh 'docker build -t akshitha1910/simplewebapp .'
        }
      }
    }
    stage('push to hub') {
      steps {
        script{
          withDockerRegistry(credentialsId: 'Docker_cred', url: 'https://index.docker.io/v1/') {
            sh 'docker push akshitha1910/simplewebapp'
          }
        }
      }
    }
  }

  stage('Deploy Web App') {
    steps {
      withKubeConfig(caCertificate: '', clusterName: 'minikube', contextName: 'minikube',
        credentialsId: 'config_id', namespace: '', restrictKubeConfigAccess: false, serverUrl:
'https://192.168.39.226:8443') {
        sh 'kubectl apply -f deployment.yml --validate=false'
      }
    }
  }
}
```

```
}  
}
```

DEPLOYMENT FILE

deployment.yml

apiVersion: apps/v1

kind: Deployment

metadata:

name: webnginx2

labels:

name: webnginx2

spec:

replicas: 1

selector:

matchLabels:

apptype: web-backend

strategy:

type: RollingUpdate

template:

metadata:

labels:

apptype: web-backend

spec:

containers:

- name: webnginx2

image: akshitha1910/simplewebapp:latest

ports:

- containerPort: 7070

apiVersion: v1

kind: Service

metadata:

name: my-service

labels:

app: my-service

type: backend-app

spec:

type: NodePort

ports:

- targetPort: 8080

port: 7070

nodePort: 30002

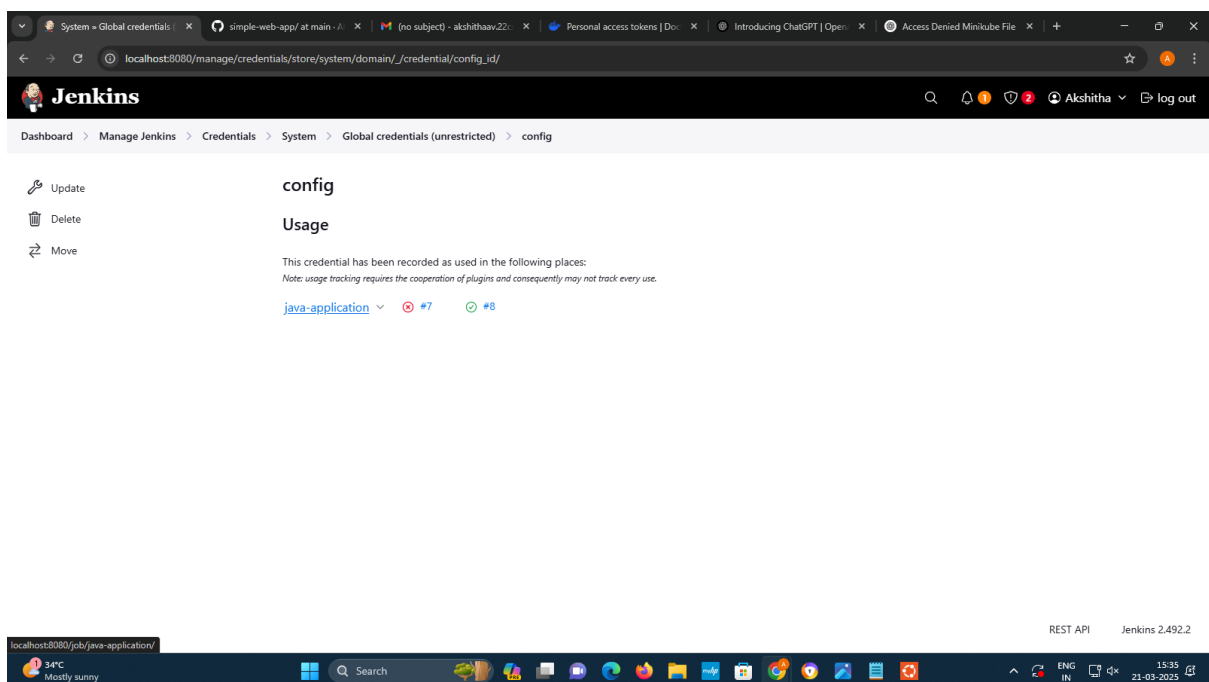
selector:

apptype: web-backend

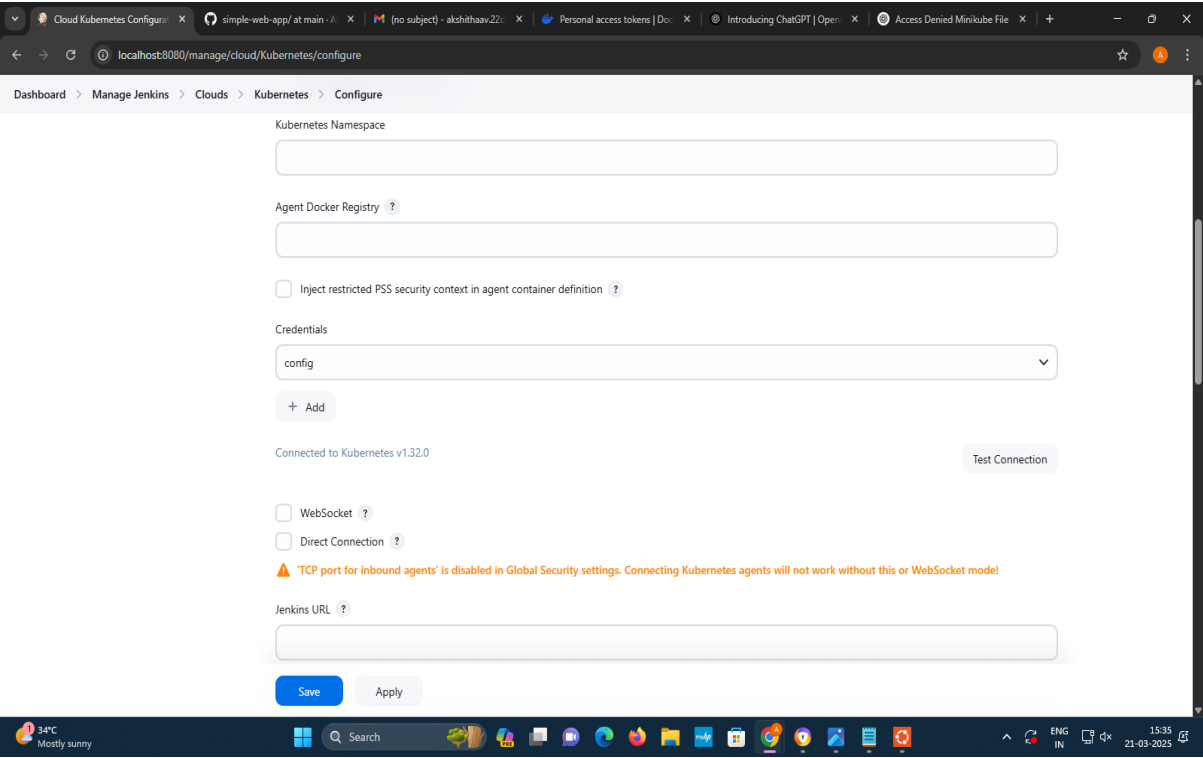
deployment.yml file should be present in the project:

gitlink: <https://github.com/Akshi1910/simple-web-app>

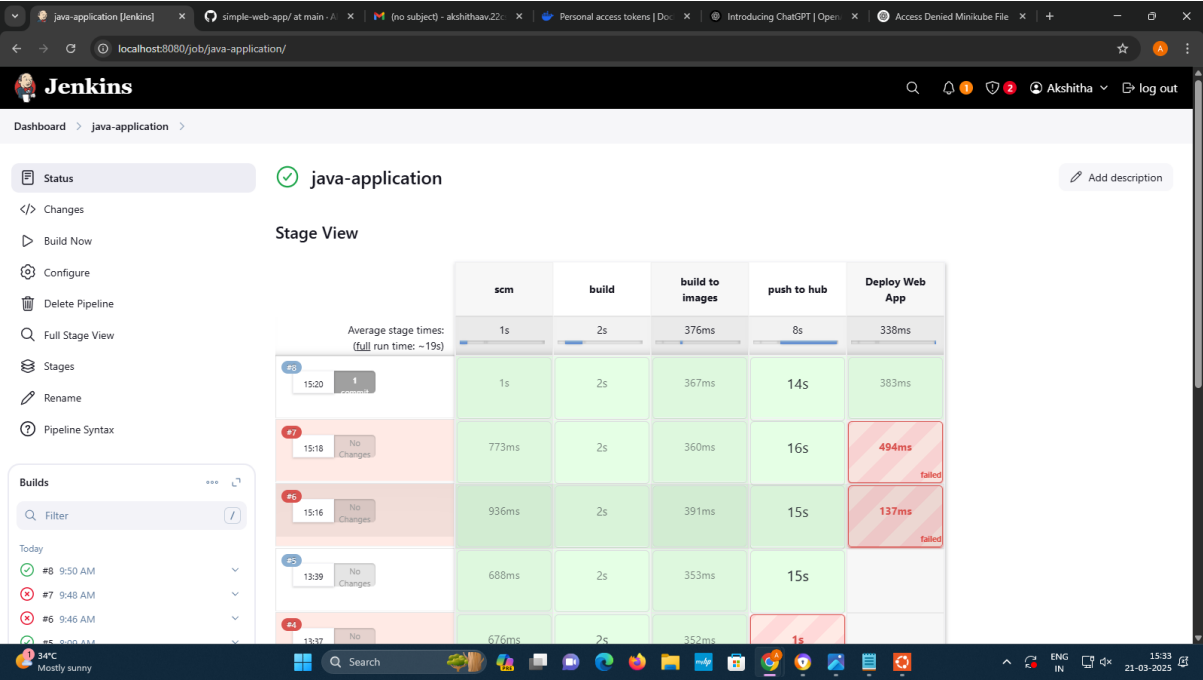
CREATION OF CREDENTIALS

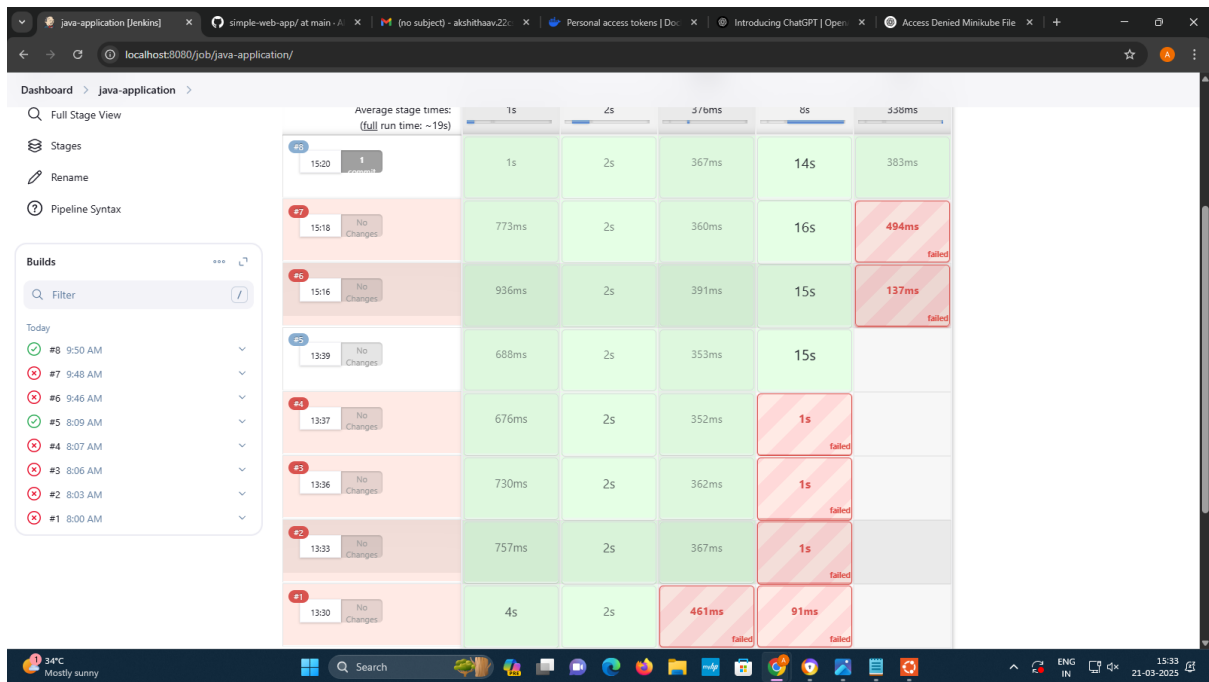


CONNECTING TO KUBERNETES



STAGE VIEW OF BUILD





BUILD SUCCESS

The screenshot shows the Jenkins Build #8 details page. The build is successful, indicated by a green checkmark. The build was started by user 'Akshitha' and took 19 seconds to complete. The build information includes the revision, repository, and changes.

Status ✓ #8 (Mar 21, 2025, 9:50:44 AM) Add description Keep this build forever

Changes

Console Output

Edit Build Information

Delete build #8

Timings

Git Build Data

Pipeline Overview

Pipeline Console

Restart from Stage

Replay

Pipeline Steps

Workspaces

Previous Build

Started by user Akshitha Started 19 min ago Took 19 sec

This run spent:

- 6 ms waiting;
- 19 sec build duration;
- 19 sec total from scheduled to completion.

Revision: 837fed54fe87aba876eb01a154c59657398cd159

Repository: <https://github.com/Akshitha1910/simple-web-app.git>

- refs/remotes/origin/main

Changes

1. deployment.yml ([details](#) / [githubweb](#))

DEPLOYMENT FROM MINIKUBE(TERMINAL)

Commands:

minikube start

sudo nano deployment.yml

kubectl apply -f deployment.yml

kubectl get pod

minikube service my-service

kubectl port-forward svc/my-service 7070:7070

```
Selectakshitha@ITP-CC16-19: ~$
! Because you are using a Docker driver on linux, the terminal needs to be open to run it.
^C@ Stopping tunnel for service my-service.
akshitha@ITP-CC16-19:~$ kubectl apply -f deployment.yml
deployment.apps/webginx2 configured
service/my-service unchanged
akshitha@ITP-CC16-19:~$ sudo nano deployment.yml
akshitha@ITP-CC16-19:~$ minikube service my-service
-----
| NAMESPACE | NAME   | TARGET PORT | URL               |
|-----|-----|-----|-----|
| default   | my-service | 7070        | http://192.168.49.2:30002 |
|-----|-----|-----|-----|
^ Starting tunnel for service my-service.
-----
| NAMESPACE | NAME   | TARGET PORT | URL               |
|-----|-----|-----|-----|
| default   | my-service |             | http://127.0.0.1:40529 |
|-----|-----|-----|-----|
* Opening service default/my-service in default browser...
^ http://127.0.0.1:40529
! Because you are using a Docker driver on linux, the terminal needs to be open to run it.
^C@ Stopping tunnel for service my-service.
akshitha@ITP-CC16-19:~$ kubectl port-forward svc/my-service 9090:9090
error: unknown command "port-forward" for "kubectl"

Did you mean this?
    port-forward
akshitha@ITP-CC16-19:~$ kubectl port-forward svc/my-service 9090:9090
error: Service my-service does not have a service port 9090
akshitha@ITP-CC16-19:~$ sudo nano deployment.yml
akshitha@ITP-CC16-19:~$ kubectl port-forward svc/my-service 9090:9090
error: Service my-service does not have a service port 9090
akshitha@ITP-CC16-19:~$ sudo nano deployment.yml
akshitha@ITP-CC16-19:~$ minikube service my-service
-----
| NAMESPACE | NAME   | TARGET PORT | URL               |
|-----|-----|-----|-----|
| default   | my-service | 7070        | http://192.168.49.2:30002 |
|-----|-----|-----|-----|
^ Starting tunnel for service my-service.
-----
| NAMESPACE | NAME   | TARGET PORT | URL               |
|-----|-----|-----|-----|
| default   | my-service |             | http://127.0.0.1:41829 |
|-----|-----|-----|-----|
* Opening service default/my-service in default browser...
^ http://127.0.0.1:41829
! Because you are using a Docker driver on linux, the terminal needs to be open to run it.
^C@ Stopping tunnel for service my-service.
akshitha@ITP-CC16-19:~$ sudo nano deployment.yml
akshitha@ITP-CC16-19:~$ kubectl port-forward svc/my-service 7070:7070
```



```

Select akshitha@ITP-CC16-19-
default      my-service      7070      http://192.168.49.2:30002
└─ Starting tunnel for service my-service.
NAMESPACE    NAME      TARGET PORT      URL
default      my-service      7070      http://127.0.0.1:40520
└─ Opening service default/my-service in default browser...
└─ http://127.0.0.1:40520
└─ Because you are using a Docker driver on linux, the terminal needs to be open to run it.
└─ Stopping tunnel for service my-service.
akshitha@ITP-CC16-19-:~$ kubectl port-forward svc/my-service 9090:9090
error: unknown command "port-forward" for "kubectl"

Did you mean this?
  port-forward
akshitha@ITP-CC16-19-:~$ kubectl port-forward svc/my-service 9090:9090
error: Service my-service does not have a service port 9090
akshitha@ITP-CC16-19-:~$ sudo nano deployment.yml
akshitha@ITP-CC16-19-:~$ kubectl port-forward svc/my-service 9090:9090
error: Service my-service does not have a service port 9090
akshitha@ITP-CC16-19-:~$ sudo nano deployment.yml
akshitha@ITP-CC16-19-:~$ minikube service my-service
NAMESPACE    NAME      TARGET PORT      URL
default      my-service      7070      http://192.168.49.2:30002
└─ Starting tunnel for service my-service.
NAMESPACE    NAME      TARGET PORT      URL
default      my-service      7070      http://127.0.0.1:41820
└─ Opening service default/my-service in default browser...
└─ http://127.0.0.1:41820
└─ Because you are using a Docker driver on linux, the terminal needs to be open to run it.
└─ Stopping tunnel for service my-service.
akshitha@ITP-CC16-19-:~$ sudo nano deployment.yml
akshitha@ITP-CC16-19-:~$ kubectl port-forward svc/my-service 7070:7070
Forwarding from 127.0.0.1:7070 -> 8080
Forwarding from [::]:7070 -> 8080
Handling connection for 7070
Handling connection for 7070
Handling connection for 7070
Handling connection for 7070
Handling connection for 7070
Handling connection for 7070

```

On browser run <https://127.0.0.1:7070/maven-web-app>

